



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The committee appointed at the Annual Meeting, to suggest some special rules in respect to the nomination of foreign members, and also to report suitable provisions for the future amendment of the Statutes, made a report, proposing the following additional Statutes, which were adopted, viz. :—

“Chap. VII. Additional Statute. Foreign Honorary Members may be chosen by the same vote as Fellows ; but only at the statute meetings of May and November, and from a nomination list prepared by a Council for that purpose, and publicly read at the meeting immediately preceding that on which the balloting takes place. The Council for nominating Foreign Members shall consist of the President, Vice-President, the Secretaries, Treasurer, Librarian, and the members of the three Standing Committees ; and no candidate shall be balloted for who is not recommended by the signatures of two thirds of the members of this Council.

“Chap. IX. OF AMENDMENTS OF THE STATUTES. All proposed alterations or additions to the Statutes shall be referred to a committee during the interval between two statute meetings, and shall require for enactment a majority of two thirds of the members present, and at least eighteen affirmative votes.”

The Hon. Robert C. Winthrop, and Dr. William F. Channing, of Boston, were elected Fellows of the Academy.

Three hundred and twenty-second meeting.

October 2, 1849. — MONTHLY MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters of acceptance from the Hon. Robert C. Winthrop, and Professor Charles B. Adams, in reply to his official notification of their election as Fellows of the Academy.

A circular from the Physical Section of the American Association for the Advancement of Science, respecting the establishment of an Astronomical Journal, was read ; whereupon it was

“ Resolved, That, in the opinion of this Academy, the establishment of the proposed Journal, for the publication of original researches in mathematics and astronomy, will tend materially to the advancement

of these sciences ; and it should receive the encouragement and support of learned societies, seminaries of learning, and scientific men throughout the United States."

By a resolution, the Committee of Publication was authorized and directed to prepare, and append to the current volume of the Memoirs, a list of the present Fellows and Honorary Members of the Academy.

Mr. Everett presented some papers from Professor Mitchell, of Cincinnati, describing his machinery for recording the observed motions of the heavenly bodies. Professor Peirce and Dr. B. A. Gould made some comments upon it.

Dr. C. T. Jackson desired a correction to be made in the printed Proceedings of the Academy, under date of January 2d, namely, that the discovery of the *almost universal presence of oxide of manganese in the water of streams, &c.*, should be ascribed to his assistant, Richard Crossley, Esq.

Dr. Jackson also exhibited specimens of tellurium, from Virginia, discovered by him in connection with the gold ores from that locality.

Dr. Pickering made a communication on the length of the year, according to the Egyptian cycle. From various sources, which were specified, he had deduced the following table of the Egyptian computation of time, viz. : —

“ That 30 years make a panegyry ;

“ 22 panegyries make a phœnix ; and

“ 2½ phœnixes make the great year, or the Sothic Cycle.”

Professor Wyman exhibited some crania of the *Engé-ena* (Troglodytes Gorilla, *Savage*), and made additional observations on its structure and relations, based on the examination of two skulls recently brought from Cape Palmas, by Dr. George A. Perkins. Contrary to the views of Professor Owen, Professor Wyman would rank the animal below the Chimpanzée, on account of the greater development of the intermaxillary bones, the comparatively smaller capacity of the cranium, and the conformation of the teeth, especially of the *dentes sapientiæ*.

The subjoined communication was received from Mr. Hal-
deman:—

“*On some Points in Linguistic Ethnology; with Illustrations, chiefly from the Aboriginal Languages of North America.* By S. S. HALDEMAN, A. M.*

“Every fact in relation to language must be worthy of consideration in an ethnologic point of view; and as speech is the natural representative and vehicle of thought, its laws, as exhibited in comparative grammar, must afford great aid in investigating the science of reason.

“The chief points, in the phonetic examination of a language, are the number and nature of its vocal elements, their order and replacement in speech, the greater or less frequency of certain contacts, and of phases like surd and sonant, lene and aspirate. Thus we should know the proportion in a given language of *p* to *t*, *p* to *b*, to *f*, or to *m*. *T* may be taken as the typical representative and most common of the consonants, and *A* (in *far*) of the vowels.

“The classification of the elements is of great importance in the study of language, and I am convinced that a distribution of the consonants into *contacts*, as proposed by the Abbé Sicard, is the only proper mode. These, as proposed by me, in the year 1846, are essentially five, the *labial*, *dental*, *palatal*, *guttural*, and *glottal*. There are, however, some intermediate ones, or subcontacts, and the order of the whole may be represented thus:—

1. P; 2. F; 3. Th; 4. T; 5. S; 6. Sh; 7. —; 8. K; 9. —; 10. Q.

“The number of elements in each contact is usually eight, but this number may be doubled, so that, if all the contacts and subcontacts were full, there would be 160 consonants, some of which being subject to variation, (as the cerebrals,) the theoretical number may be

* This paper was intended in part as a review of a work entitled, — *The Essentials of Phonetics; containing the Theory of a Universal Alphabet, together with its Practical Application as an Ethnical Alphabet to the Reduction of all Languages, written and unwritten, to one uniform System of Writing; with numerous Examples; adapted to the Use of Phoneticians, Philologists, Etymologists, Ethnographers, Travellers, and Missionaries, in Lieu of a Second Edition of the “Alphabet of Nature.”* By Alexander John Ellis, B. A., Fellow of the Cambridge Philosophical Society, and formerly Scholar of Trinity College, Cambridge. London, 1848. 250 pages. Printed in phonotype.

200. This shows the necessity of using points extensively, to prevent a superabundance of primary characters, as the missing sounds occur. Mr. Ellis has devoted a number of years, in various parts of Europe, to the study of the phonetic peculiarities of language, the results of which are given in his *Essentials of Phonetics*, and his views are worthy of attention. Unfortunately, his alphabet was primarily adapted to English alone, and being intended to replace the ordinary one, the most unjustifiable concessions were made to its corrupt orthography, apparently that the people might be as little shocked as possible, and spared a few hours' study. But whilst phonotypy is framed for the heterotypic readers of a fleeting present, it is admitted (*Phonetic News*, p. 1, §§ 5, 7) that 'most poor children leave school unable to read with ease,' 'and that one third of the population of England are unable to read.' They, at least, have no prejudices to conciliate. The common sense of Europe, Polynesia, Africa, and a great portion of America, as well as of those to whom these literary husks are specially offered, (if made acquainted with the merits of the question,) would reject them as barbarisms. Moreover, the unlettered public should not be deprived of the power to pronounce foreign words and sentences, nor the foreigner of that to pronounce English ones.* The excuse, that the powers of the *Latin*† alphabet are 'uncertain,' (p. 222,) is neutralized by his own opinion that the Latin vowel-characters had their Italian or German power,‡ and we find an English author making an adjective HIBERIANA out of the English name *Heber*.

* Phonetic writing obviously depends upon speech; Mr. Ellis, however, makes both virtually depend upon etymology (pp. 103, 104), as if to preserve the aristocratic distinction between the lettered and the unlettered public. As a consequence, his English depends upon Old English, Latin, or French orthography, so that, to write (and speak) it, one must be acquainted with these languages. Thus he takes *minor* from the French, and makes it different from *miner*. So *or* stands in *memory* (which he pronounces *mem-or-y*), and *form* in *réformation*; and the words *our*, *power*, follow the old spelling, the latter having *e* in the second syllable.

† Leaving Latin out of view, there must be uniformity somewhere, because the Sandwich-Islander spells the name* of one of these islands MAUI, and an English or American missionary, a Spaniard, Portuguese, Italian, German, Choctaw, or West African Mandingo, would do the same.

‡ The "many [English] vowels and consonants which the Latin language is totally unable to represent or to suggest," should have been particularized. Among them are the vowels in *net*, *not*, *nut*, *fat*. The vowel in *fin* was perhaps heard in *OPTIMUS*, as *u* replaced *i* in a few words; a fact cited by Mr. Ellis to prove that

“When a character has several sounds, it has a *special* and an *accidental* power, the former usually found in its alphabetic name. It seems plain, that the accidental power should have a new or modified character, and not those which have always been written and recognized. Mr. Ellis assigns to the vowel O the character ω closed at the top. He should then, at least, have supplied that in *not* with a modified character. A character formed like the Greek ς (the Latin υ) is perverted to a diphthongal power, as if to justify and perpetuate a false pronunciation of Greek.

“Mr. Ellis (in conjunction with Mr. Pitman) has proposed, it is said, fifteen alphabets, in which there is a gradual deterioration, the last being the worst. There is a certain relation between the primary vowel in *meal* and the secondary one in *mill*, which was recognized by Mr. Ellis in 1844, when the former was represented by I with a horizontal medial line, and the latter by I. The related vowels in *dale*, *dell*, were represented by E with the line continued across, and E without a medial line. Now, *meal* and *mill* are spelt ‘ $\text{m}\mathfrak{e}\text{l}$, mil ’; whilst *dale* and *dell* stand ‘ dal , del ’; and A, the capital of ‘a’ is reserved for the rare Welsh vowel in *fat*. Having reached its lowest point of deterioration, this alphabet ‘is brought to a satisfactory conclusion,’ and fault is found with those who will not adopt the later changes, termed ‘improvements’ (p. 220, and *Phon. Journ.*). When the pure vowel in *meal* is *short* (without falling into that of *mill*), \mathfrak{e} is employed; which is correct, but inconsistent.

“Mr. Ellis’s ethnical alphabet contains 56 characters, including *a* with a line through it, which is omitted in the table on p. 126. Some of his analyses are very minute, as the ‘middle sound’ (pp. 3, 7) between the consonant and vowel of *see*. On the other hand, his ideas of the relation between the *open* (and usually long) vowels in *paw*,* *fur*, *pool*, *lo*, and their *close* (and usually short) condition in *naught*,* *worth*, *full*, *obey*, are very confused. At present, he makes

υ had “undoubtedly several sounds” in Latin. He should have informed his unclassical readers, that in these words, according to the ancient grammarians, the \mathfrak{u} and υ had not their true power, but an allied one, for which Claudius proposed a character. Consult Velius Longus, Priscian, and Donatus. The power in question was not the French *u*, as that was represented by Y. The aperture of the I in *fin* is nearer that of U than of I.

* To form the latter, a longer pipe is required than for the former, according to the experiments of Wheatstone. Herschel (*Encyc. Metrop.*) confesses himself unable “to detect any shade of difference” between them.

no distinction between the short vowel in *mutter* and the long one in *murder*, chiefly because it would be inconvenient in phonography.* He places the vowel of *fall* in the first syllable of *authority*, *although*, *water*, *fortune*, *short*. The vowel in *not* is placed in *quarter*, *god*, *John*, *hog*, *horse*, *wrong*, *long*, *beyond*, *swan*. The inconsistency is obvious which demands a different vowel in *fōr* and *nōt*, and an identical one in *fūr* and *nūt*; a different one in *conclude* and *good*; but the same one in *endūre* and *dūty*. In some cases Pitman and Ellis have used at different times both of the vowels in *fall*, *nōt*, in the same words, as in *talk*, *George*, *cross*.

"The vowel in *pool*, *smooth*, is placed in *to* (as in *to do*), *into*, *truth*, *rule*, *conclude*, *Lucian*. In most of these examples, the vowel is neither long nor short, but *medial*, and the aperture is both close and open. The vowel in *rule* is closer and less labial than that in *pool* (which is short in *boat*), and when short it occurs in *pull*. It is preceded by English *y* in *endūre*, *dūty*, when not pronounced with the Welsh diphthong *iw*.

"The discrepancies here noticed arise in some degree from an empirical rule,† (p. 101,) requiring the orthography to represent the 'emphatic utterance of each word as it would be pronounced independently of all other words.'‡ This mode of pronouncing English is common with foreigners. But if *to*, as in the verb *to do*, or in *heretofore*, (*Phon. Journal*, 1847, p. 283,) is pronounced independently, like *too*, as when a child spells it, it is a different word, and of no more account for its legitimate purpose than a broken link detached from a chain. Mr. Ellis takes a different view of his own vernacular on page 110, where he states that French syllables upon which no stress is laid 'are not to be *hurriedly* or *indistinctly* pronounced, as in *English*.'

* This name is applied to a beautiful and useful system of stenography, which, however, is not as philosophical as is generally supposed. The vowels in *food*, *feed*, should both have been "first place," and those in *far*, *fall*, "third place," so as to form the vocal circle properly. The diphthong in *aiste* should have been "third place" by its vowel. The vowel-dots, when placed in an angle, cannot be read with certainty. The *w* and *y* should each have had an independent character for syllables like the old English *wray*, or the German *glauben* when pronounced *jlaubn*. The character for *r* (in the labial position) would have been better as *m*; *s* as *n*; *tsh* as *s*, &c.

† Those least skilled in analysis will insist most upon this rule.

‡ Adelung, quite as good an authority, gives a different rule: — "*Schreib wie du sprichst*, ist das höchste und vornehmste auch das einzige Grundgesetz für die Schrift in allen Sprachen."

"We have seen that Mr. Ellis places different vowels in *water* and *quarter*, yet he considers that in *boy* and the one in *quoit* identical, admitting no vowel distinction in the diphthongs. In writing diphthongs other than English, he uses a notation which makes them dissyllables, whence it is evident that he does not understand the nature of these compounds. The Nadako, an unwritten language, is very instructive upon this point, as it contains true diphthongs, and their corresponding *quasi* diphthongs, which Mr. Ellis's theory places in English and German. In this paper it is impossible to represent an exact pronunciation, so that the words must be taken as approximately correct, unless fully described; and the notation is provisional.

"In the Nadako word for *cheek*, *tánkadaus*, the last syllable does not rhyme with *house*, but the vowels are pure, as in the name of the Persian poet Firdausi, both these words having four syllables. The *t* and *k* are 'indifferent,' the *n* is pure, (not *ng*,) and all the vowels short. But in *behedawso*, *shoulder*, the third syllable is accented, and like the second of *endow*.

"This language, besides the English diphthong in *aisle*, (ending with a *coalescent*, as explained by me in 1847,) has a *quasi* diphthong similar to it, terminating with the vowel in *feet*, and another with that in *fit*.

"The Hesperian* (North American) languages are remarkable for the extent to which they reject the labials (except *m* and English *w*), a circumstance which probably has some connection with the coldness of expression of the aborigines; emotions being less likely to affect the countenance, if the lips remain unmoved in speech.† Several Oriental languages, in which the four inner contacts are used, want some of the labials; whilst most of the European ones employ the four outer ones, excluding the glottal.

"In the Lenàpe‡ or Delaware language, there is a sound which

* "*Hesperian*, situated at the west." *Dict.*—For scientific purposes, America north of 50° might be called *Hudsonia*; from this line to the tropic, *Hesperia* (or *Vesperia*); the tropical portion, *Favonia*; from the southern tropic to 50° south, *Zephyria*; and south of this, *Magellania*.

† In representing a spirit, painters reject the body, preserving a winged head; probably because it is the seat of expression, thought, and the organs of sense.

‡ The *a* as in *far*, accented; the *e* as in *pet*. Messrs. Pitman and Ellis have maintained that the vowels in *pity*, *net*, *not*, cannot be pronounced except before a consonant. The proper name *Konza* ends with the vowel in *not*, that of *Choc-taw* (the *c* is a literary corruption) has it twice. Mr. Ellis, whilst he denies the

Mr. Duponceau describes as a *whistle*, citing the word '*wtehim*' as containing it initially. This consonant I have noticed in Cherokee and in Weko (*e* as in *they*), in the latter of which it is peculiar in being final as in *ta*"v, *three*, the *a* as in *cart*. No grammarian or phonetician has properly analyzed the English *wh*. Of two opinions concerning it, one gives it as the English *w* preceded by *h*, according to which the word *when* is represented by *hwen*, by Noah Webster and Ellis. Others consider it a distinct whispered consonant, and Dr. Comstock perverts to its use Q (consecrated to the Oriental *qof*, at least as early as the building of the pyramids), writing qen for *when*. The first party is wrong in inserting *h*, and the second in giving three instead of four sounds.

"Let *sonant* be represented by a grave, and *surd* by an acute accentual; and let the Greek aspirate-mark indicate an *aspirate*, and the lenis a *lene* consonant. Let the English *w* be represented by its Latin character V, and the elements of *when* will stand "v"vɛn, or in English letters, wh-w-e-n. Mr. Ellis overlooks this sound in his account of Welsh.

"This succession depends upon a law not hitherto announced, prevailing in the more flowing consonants (the liquids* and nasals), which results in a tendency of their surd aspirates to be followed by their lenesonant power. The English interjection *hem* and German *hm* (formed with the mouth closed) afford a second example. Mr. Ellis writes it 'h'm,' as if it were *h* preceding *m*.† N and L take the same phases in Cherokee. In this language, when the ordinary *l* is not interposed, and a vowel follows the aspirate, the vowel is whispered. In Welsh, the whispered element occurs final. The two modes of its occurrence have not been recognized by Mr. Ellis.

"I have found whispered vowels, and even syllables, not uncommon in several American languages, as in the two final syllables of the Comanche word for *ten*, sɛwanchut; the first syllable of which agrees with *send*, but nasal; the second with *want*; the third with the vowel in *nut*, whispered; and the fourth with that in *foot*, whispered.

vowels in *pit*, *pet*, *pat*, to the French (p. 109), inserts the characters with which he represents them in his example of this language on p. 156.

* English W and Y bear the same relation to P and K respectively, that L does to T, or R to the palatal contact.

† *Phonetic Journal*, 1848, p. 141, 5th line from below. In other cases, the interposed comma indicates a second syllable.

"A labial consonant seldom appreciated is the aspirate (or spirant) of B, the German w and Spanish *b* in certain words, as *Cordoba*, *Habana*, a sound confounded with their *v* (also a Spanish sound) by the English. Mr. Ellis spent a year in Germany without discovering the difference, (which he now admits, but usually disregards in his examples of German,) — a singular fact in a professed phonetician, when the most unlettered part of the population of Pennsylvania speaking German and English make the proper distinction. Even the savage aborigines inhabiting the frontiers of Mexico and the United States, pronounce the sound in question with perfect accuracy in words taken from the Spanish, as that for *horse*, which, in German characters, is *kawajo*, the *l* of the original being dropped in Mexican Spanish, as in corresponding French words. This aspirate *b* occurs naturally in *Weko* and *Konza*. The Spanish grammarians have an imperfect idea of this sound, which they insist is a *b*, because it is not the labiodental *v*. This language doubtless takes it from the Latin, of which, as well as of Greek, it seems to be the digamma (ϝ), the small letter of which was probably *two gammas* (γγ), from which resulted w, which character, under this view, has not arisen from the repetition of v. A critical review of the Greek orthography of Latin names, and the reverse, will, I think, confirm the views here taken. I would represent this sound by B surmounted by [^].

"The corresponding aspirate of P (undoubtedly the Greek *phi*) is heard in German when *f* follows *p*, as in *pfropf*, *kopfweg*, *dampfboot*.

"S is a post-aspirate of *t*, the theoretical aspirate of which is intermediate in power to *theta* and *s*. The *lene* of *th* (in *this*) is to be looked for in the Spanish *d*, in those cases where it is believed to have the power of sonant *th*. The purely English notation *sh* (which is in no case etymologic) is founded in error; as this consonant does not bear the relation to *s* which the annexed *h* indicates in other cases. *Sh* belongs to a more posterior contact than *s*, and there is an allied sound formed still farther back, with the jaw more open. It is the Arabic *sad*, (Hebrew *tsadai*,) mistaken by Mr. Ellis for an ordinary *s* strongly hissed, overlooked in his Polish and Russian, and in Sanscrit mistaken for German *ch* (p. 56) and for *sh* (p. 133). I have heard it in Polish, Chinese, and Nadako.

"The French *j* (the sonant of *sh*) I have heard in but two American languages, the *Konza* and *Wyandot*.

"Sonant *s* (as in *roses*, *has*, *is*, *his*, *wise*) should not be represent-

ed by the Latin, Italian, and German double character *z*; and here Mr. Ellis might have consulted the appearance of the English page with advantage, in using a pointed *s*; the sound in question being scarcely ever represented by *z* in English and French. In Pelham's notation, *s* is used with its sonant power, that in *hiss* having a pointed *s*.

"Mr. Ellis's ethnical alphabet, whilst it properly separates *x* into *cs*, represents the double sound of the English *tsh* by a single character, namely, *c* with a tail; and the reasoning employed to excuse this *ought* to have required the English *dzhi* to be represented by *g* with the same tail, to make the deduced characters correspond with their originals *c*, *g* (*cay*, *gay*), which, by a great concession on the part of Mr. Ellis, he uses in their classical sense. But whilst the character for *tshi* is *etymological*,* that for its sonant *dzhi* is merely *English*, being *j*, a character which, on the correct principle of making *c* *cay*, should have had its Latin, Italian (as in *jeri*), German, Polish, &c. power, as in the initial of *year* (German *jahr*), the character having been made for this sound.† In Spanish, *j*‡ stands for the Greek *chi*, and in Cherokee for *gu* (in *good*), constituting less of a corruption than to call it *dzhi* or *zhi*, because it still represents a member of the guttural contact. But if *tshi* must have a character because derived from *cay*, so must the German *ts*, *t* alone, French *ç*, *sh*, *t* when followed by *sad*, &c., with their sonants, forming an aggregate of about twenty useless characters, rendered necessary by Mr. Ellis's concession to etymological orthography, which in other points he ostensibly opposes. Moreover, who shall decide when *tshi* is derived from *c* or *g*, or *ng*, or *ch*, or *j*, or from neither, especially in foreign languages? — and to use it in other cases (to write *China* for example) destroys its supposed etymological value. A statement of the fact, and

* As in the change from *brig* to *bridge*, and *kist* (Latin *cista*) to *chist*, or the literary corruption *chest*.

† In the *English* alphabet of Professor Reynolds, published in 1845, *J* has its proper power, *yoke* being spelt like its original *jok*. *E* and *ε* are used properly, and *fowl* is spelt *faul*. English written in this alphabet, or in that of Jones, can be read by a reader of ordinary English as readily as Mr. Ellis's transcription; and a person taught with either, or with Dr. Comstock's, can subsequently learn heterography quite as easily as through Ellis's system.

‡ There is a complete parallelism between the Spanish use of *J* as *ch*, and the German use of the Latin *V* (English *w*) as *f*.

the cause, of the change from *kinn* to *chin* should have been sufficient. The cause of this phenomenon seems to be as follows.

“K and *g* being formed by the base of the tongue, where there is not much room, to form them readily, the mouth must be more open than for the palatals, which are formed where the tongue is thinner and less confined, so that the latter are *close* when compared with the former. I and *ε* have also a close aperture; more close, indeed, than suits the ready production of *k*, but corresponding with that of *tsh*, &c. There is a tendency to place the organs in a position to form the subsequent vowel or liquid* during the formation of the preceding consonant, so that if I is intended to be formed, the previous consonant will be more likely to be a palatal than a guttural. Hence *tshi*, &c., are more readily formed than *ki*.

“Mr. Hale, (*Philol. U. S. Expl. Exp.*), followed by Dr. Comstock, perverts J to its French power, and C to that of *sh*. One of Mr. Ellis’s characters for *shi* is the long *f* terminated below like Italic *f*; the other the Greek Σ, which is a useless perversion. For *zhi* he usually employs *z* with a tail like *ς*, and Σ reversed. There is a remnant of propriety left in his use of *j* (deprived of its dot) for the element following *l* mouillé in French, *n* circumflex in Spanish, and a number of other consonants in the Slavonic languages. The element, however, which follows the Spanish circumflex *n* is nasal, not pure like that in the English word *onion*, which is often cited as containing the Spanish sound. The analysis which introduced this *j* in French should have discovered a corresponding labial in the same language, and a palatal in English.

“Dr. Rapp’s ‘indifferent’ consonants, well known in German, are

* In *play*, *pray*, the tongue is in the position of *l*, *r*, whilst the lips are closed to form *p*. Mr. Ellis formerly wrote *bul* as the last syllable of *table*; he now writes *tab’l*, as if there *ought to be* a second vowel, as in *tabula*. In general, *r* may have the phases of *l*. The combination *pr* (as in *pray*) can, like *pl*, be pronounced and form a syllable without a vowel, notwithstanding Mr. Ellis’s former opinion of such a syllable being an “orthographic monster,” a monstrosity with which the Bohemians seem to be familiar. Let *l* and *r* follow the word *stop*, when we will have the English words *stopple*, *stopper*. Compare *barble*, *barber*; *battle*, *batter*; *bushel*, *brazier*; *hammer* with the German *hammel*; and *sugar* with its Bohemian form *cukr*. The two modes of English orthography *ter*, *tre*, when final, are equally incorrect: Mr. Ellis, however, puts the vowel in *ferry* in the finals of *letter*, *martyr*, *maker*, *alter*, *theatre*, *miner*, *power*, &c., to which the *Westminster Review* objects.

common in the American languages. They are *p*, *t*, *k*, formed by the contact of a greater surface than usual. I supposed them to require a greater stress of breath until I tested the fact mechanically with an appropriate dynamometer. I have never met with 'indifferent' *t* preceding *s* or *sh*, and there is a physical reason against their ready occurrence. The indifferents should be rigorously marked in all transcriptions of language.

"Mr. Ellis indicates nasal vowels by *n* with a dot over it, which seems more awkward than a horizontal comma point (·) beneath the nasal letter, somewhat as in Polish. This will appear when several nasals occur in succession. Let us represent the dotted *n* by Italic *n*, when (using German characters) the Wyandot word for *a bear* will be *danjnonjnēn*^c. The first and second vowels of this word are of medial length, the third short and accented. The character > indicates the close of the glottis, and the *spiritus asper* the subsequent passage of the breath, as in the word *quick*^c.

"This close of the glottis is also medial in Wyandot, as in *hare-da>ajehau*, my name in this language. The *a* is that in *far*, the *e* in *weigh*, *j* as in German, *r* smooth, and the final syllable like *how*, but nasal. The first, second, and final syllables are each half a second long, and the remaining three are only one sixth of a second.

"The Weko language of Texas has a clack or smack formed by the sudden separation of the closed fauces, independent of any action of the lungs; forming an exception to the maxim of Buquoy, 'Stimme nur da wo lungen vorhanden.' The word for *eye* is *kɪɪkɪ*^c, in which the *k* is indifferent, and the vowels as in *pit*. This sound occurs medial and final. The ordinary trilled *r* occurs in this language.

"The Nadako has an allied independent dental sound in a *t* strongly held in place with a pressure of air behind it, (not from the lungs,) which is allowed to escape in a sudden explosion, like spitting, as in the word for *tooth*, *t'auh*, in which the vowels are short, (the last not diphthongal, and as in *foot*,) the final element being the ordinary aspirated *h*.^{*} The dental effect is more dull and less loud than the corresponding Hottentot clack.

"The indefatigable missionary, the Rev. P. J. de Smet, informed me that he found a corresponding labial effect in one of the languages of the Rocky Mountains, in which the repetition *p'p'* is used.

^{*} This final *h* is also found in Konza.

“Mr. Hale’s notation *txl* for an allied independent Chinook glottal is defective, the sound in question being difficult and of a deeper contact, whilst his combination is an easy one. An author, however, who would knowingly omit or replace a letter as important as the French *u*, must have had but little inclination to analyze the peculiarities of speech which his unusual opportunities threw into his way.

“In the Teutonic languages, the nature of syllables is not appreciated, as it is in the more highly refined French, in which the rhythmic sense has attained its highest development. The English words *rock, hut, top*, would be correctly considered dissyllables in French; as the escape of the breath at their close takes the place of a vowel, or a liquid consonant. The English word *luck* is exactly the Chinese word for *six*, except that in the former it is a dissyllable (*l-kʰ*) and in the latter a monosyllable (*l-kʰ*), the breath not being allowed to escape after *k*. The same thing takes place with *p* and *t* in Chinese.

“Unless accent and quantity are marked, a language must be known to be read, and such an omission has enabled Mr. Ellis to give *quasi* phonetic specimens of three times more languages than he received from legitimate sources.* On account of this omission, a speaking knowledge of Lenape or Delaware cannot be acquired from Zeisberger’s German transcription. For example, he writes the numeral *five, palenach*, which, as a word in German characters, would probably be accented on the first syllable, with the vowels short. Let the reader pronounce the supposed word, and then compare it with the true one. The vowels are as in *cart* and *lay*; the second syllable takes the grave accent; the length of the syllables is respectively two, five, and three eighths of a second; the final *ch* is deeper than the German, and it is trilled, and followed by *kʰ*.

“The want of a proper notation renders a paper of this kind unsatisfactory and difficult to print, and on this account I have limited the number of examples, and avoided diacritical marks. I communicated some remarks upon the Phonology of the Wyandots to the American Philosophical Society, which may be found in their Proceedings for 1846, Vol. IV. p. 268. I have taken oral specimens, from natives, of nine aboriginal American languages, five of which are un-

* He marks the accent in English, when it cannot be determined by the position of *fifteen* letters which he enumerates. He uses the acute accentual only, whether the co-accented consonant precedes or follows the vowel.

written, besides others, upon which I lay no stress, from persons who did not speak them vernacularly, as Russian from a Pole, and Turkish from an Armenian. The English in general confound the short A with the vowel in *fat*, an error into which Mr. Pickering, and I think Mr. Keating, have fallen. I judge the latter from his Dakota (Sioux) vocabularies, in which the vowel in *fat* is represented in words which have A short in the cognate Konza, if my analysis is correct. This confusion appears in the *London Phonotypic Journal* (1847, p. 108), where the vowel-character used in writing *am* (the key word) is placed in *as, far, apart, enlarge*.

"Mr. Ellis's criticisms upon the Missionary alphabet owe their force to the fact, that it employs *no new characters*, his own fault being that he employs too many, and not enough. The additions to this alphabet by Mr. Hale, and subsequently by Dr. Comstock, are partly free from these objections. The alphabet of Marsden has a few good features, but this author knew little of phonetics.

"The objections to Mr. Ellis's alphabet by the *Edinburgh Review* are perfectly valid, and this author's attempts to avert their force are very weak. Besides his unfortunate citation of the variation of the Latin U, as supposed to be proved by the orthography OPTIMUS, OPTUMUS, he refers to his tables on 'the value of Roman letters in nine modern languages,' to show 'how little truth there is in the idea that certain Latin letters are appropriated to certain sounds as *European* letters.' We here find that U represents the vowel in *fool, full*, in six out of the nine languages, and that in *nut* in but two, Dutch and English, in neither of which is it specially applied to this power. In English, the idea of U might have been associated with the words *rûle, full*. The syllable *you* has a character in Russian, and sometimes in English. The conjoined 'au' is uniform in six of the examples, but in none, not even English, has it Mr. Ellis's power, according to which 'maur' spells *mayor*. The character *k* as German *ch* suits no language; J and W stand alone with their English power; and *q* is incorrectly and confusedly used for the German *g* when the sonant of *chi*, for the distinct Arabic *ghain*, the modern Greek *gamma*, and the Hebrew *gimel*. The diæresis-mark, as in some German books, is corrupted, after the *Phonotypic Journal* (1847, p. 77) had decided against 'strokes and dots' because not adapted for 'ornamental type.'

"The *Phonetic News*, (1849, p. 103,) in discussing the ability of a

pupil taught with its alphabet to learn ordinary English, says that 'the whole construction of the phonetic alphabet was devoted to this end, and that to attain this great, this most important object, the siren voice of scientific analogies was steadily and systematically disregarded; not because European analogies were worthless, but because English analogies were paramount.' If this was the intention, the 'English analogies' must have been extremely difficult to discover, since the crossed I was used at different times to represent the vowel in *field*, and the consonant and diphthong in *thigh*. The character ω (nearly) replaced a less corrupt type for the vowel in *fool*, to be itself replaced by *u* as stronger analogies appeared. In January, 1844, these were secured by using A as in *far* and A in *fat*, and there was a similar correspondence between the primary and secondary vowel-characters. In March, A had the cross line lengthened, in October it had the head of T, now shortened to a simple line. In the same month the small letter for the vowel in *field* was a dotted ι , finally rejected for ϵ , which, in the search for English analogies, was first assigned to the vowel in *they*, although subsequently pretended to be derived from the double English character in *fee*.

"As the *Essentials of Phonetics* contains the fullest and latest ethnical alphabet before the public, it became necessary to examine the basis upon which it is founded. The fact that it was intended to produce 'as little alteration as possible in the appearance of the printed [English] page,' (*Phon. Journ.*, 1847, p. 32; *News*, p. 32, 67^{'''}, 103,) against the corruptness of which the phonetic publications have been so eloquent, not only calls for its prompt rejection abroad, but also as far as English is concerned.

"If concessions in orthography are allowed to languages with a perverted alphabet, they can and ought to be demanded with tenfold force for the humblest language which spells correctly; as the Danish in its use of *j* and *y*. But there is little to fear, since it is not probable that nations, who have spent centuries in keeping their orthography more or less pure, would submit to a literary fraud of such magnitude.

"A singular fact in connection with the wonderful increase of phonetic works in England is the great dearth of examples of the native dialects, and the comparatively few foreign languages investigated, when London must afford such admirable opportunities. Officers in the public service, who have spent years in distant countries, might furnish much information; but, judging from the tone of these jour-

nals, nothing can be expected from such a source. Unphonetic works on the English dialects are numerous, but they are almost useless, because unpronounceable; the word 'wapsè,' for example, which is a form of the German *wespe* and the English *wasp*."

Professor Horsford illustrated "the spheroidal state of water," by several experiments. He also communicated the following

"Results of some Experiments on the Explosions of Burning-Fluids."

"It has been maintained, that several of the various preparations, used under the general denomination of *Burning-Fluids*, are, in certain conditions, explosive. It has been asserted, on the other hand, by venders, that they are not explosive. Wherein the misapprehension lies, how the numerous accidents that have occurred in the use of these preparations are to be explained, and by what precautions such accidents may be prevented, have been subjects of experimental inquiry.

"The burning-fluids, as a class, are rectified spirits of turpentine, or turpentine with an admixture of a small percentage of alcohol, or of some other inflammable body readily mixing with or soluble in turpentine.

Turpentine, alcohol, ether, and the burning-fluids, when fired in an open vessel, burn at the surface as long as a supply of oxygen is kept up. (a) A slight report attends the flash of flame at the commencement of the combustion. (b) The accidents with burning-fluids have ordinarily occurred during the filling of lamps from the cans, when the chamber of space above the fluid within the can or lamp was large, and *always* in the presence of flame. (b) A mixture of hydrogen (an inflammable gas) with oxygen (an ingredient of atmospheric air), in the proportion of two volumes of the former to one of the latter, is eminently explosive. (c) Atmospheric air, substituted for oxygen, lessens the violence of the explosion when flame is applied. (d) The carbo-hydrogen, employed for city illumination, may be substituted for the hydrogen, and the explosive property, somewhat impaired, be still possessed by the mixture. (e) Certain proportions of the gases are better suited to produce violence of explosion. (f)

"It has been found that the vapor of common spirits of wine, ether, and of two varieties of burning-fluid, may severally be substi-

tuted for the hydrogen, and the explosive property remain essentially the same, though of unequal energy. (*g*)

“In these facts, *a, b, c, d, e, f, g*, lies the explanation of the phenomena that have been observed with burning-fluids.

“The following experiments were made : —

“I. A current of air was directed into the upper part of a loosely-stoppered laboratory glass spirit-lamp, while burning, causing thereby a mixture of alcohol-vapor and air to rush past the flame. After a moment or two, the jet took fire, and was instantaneously followed by explosion. This result was invariable.

“II. After permitting a drop of alcohol, in a large glass flask of small neck, to evaporate for a moment, and applying flame to the mouth, explosion resulted generally, though not invariably.

“III. Ether similarly treated yielded less uniform results, because, probably, of the greater difficulty of obtaining the proper mixture of ether-vapor and air.

“IV. A variety of burning-fluid in extensive use, said by the venders not to *explode*, was subjected to similar experiment, with still less frequent affirmative results. They were, however, sufficient to show that explosions with it are possible. Similar experiments have been made with another variety of burning-fluid, by Dr. Morrill Wyman, with like results.

“It is, then, conceivable, that, when the proper relative amounts of the vapor of burning-fluid and atmospheric air are mixed together, as they may be in the upper part of a partially filled can or lamp, and a flame is brought sufficiently near, explosion must result. If the quantity of mixed gases be large, the explosion may cause the destruction of the containing vessel, or if that remain entire, it may drive out a portion of the fluid, which, taking fire, may cause more or less injury. The course of safety has been pointed out by the dealers in these articles for illumination. It is to fill the lamps (the tops of which *screw on* and are not supplied with special air-holes) in the *absence of flame, by daylight*, for example ; in which case no explosion can occur.” *

* “Similar accidents to these have taken place in the use of the so-called air-tight stoves for burning wood. After the wood has been fired, and the supply of air for some time shut off, on reopening the draft, and sometimes without, occasional explosions of great violence have occurred, attended with the blowing out of the stove-door, and in some instances producing still greater injury to the stove.

Professor Agassiz gave additional facts respecting the circulation of insects, and showed in the larva of the mosquito how true vessels, destined for the caudal branchiæ, arise as branches from the *main tracheal* tubes.

Three hundred and twenty-third meeting.

November 6, 1849. — MONTHLY MEETING.

The PRESIDENT in the chair.

The President exhibited a model of the great wooden dam recently erected across the Connecticut River, at Hadley, and explained the means by which it was kept from floating, or from being carried down the stream.

Professor Horsford made a further communication upon the spheroidal state of water. He illustrated, by experiment, a phenomenon occurring when water is carefully dropped into a hemispherical capsule of polished platinum. The mass having been made to rotate by directing the drops of water obliquely upon the side of the capsule, at a certain stage the irregular motions and shape were resolved into a series of vanishing and reappearing indentations in the margin of the spheroid, of wonderful regularity and beauty. This scalloped edge was occasionally replaced with a series of wave intersections, exhibiting at the surface of the water systems of lozenges flitting from the circumference to the centre, diminishing till they vanished.

Professor Horsford suggested that the phenomenon might be due to the rotation of the mass, and its motion across the bottom of the capsule from one side to the other, tending, as the mass moved outward, to its elongation, and to contraction

The probable explanation is this. After firing the wood and shutting off the draft, destructive distillation commences. Inflammable gases issue from the wood, which, mingling with air derived from the pipe or remaining still unconsumed, furnish an explosive mixture, which the first jet of flame, or perhaps the incandescent coal, causes to explode.

“As these accidents are not of frequent occurrence, it may be found that the probability of producing inflammable gases in the required quantity is less with some varieties of wood than with others.”